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BIRDS OF PARADISE.

1. *Paradisea apoda*, The Emerald. 2. *Paradisea aurea*. The Siflet. 3. The Incomparable; (Le Vaillant).
4. The Cloudy; (Le Vaillant). 5. *Paradisea superba*. The Superb.

BIRDS OF PARADISE.

Many of the narratives of the older naturalists are little more than amusing fables. To deduce the leading characteristics of an animal from a minute investigation of its physical construction—to watch its habits with anxious solicitude in its native haunts—formed no part of the care of those who compiled books of natural history a century or two ago. Whatever was imperfectly known was immediately made the subject of a tale of wonder. The old accounts of the Birds of Paradise are striking examples of this disposition to substitute invention for reality. Now and then some traveller brought to Europe the skin of a beautiful race of birds, of whose habits he knew nothing, except what he learnt from the natives who collected them. Their plumage was of the most brilliant lustre; some were covered over the breast and back with tippets of the richest hues; others had long delicate lines of feathers, prolonged from beneath their wings, or branching from the head; and most of these trappings appeared too fragile for any use, and incapable of bearing up against the rude winds which visit the earth. The specimens also which came to Europe were deprived of feet. Fancy had thus ample materials to work upon. These birds, tender as the dove and more brilliant than the peacock, were described as the inhabitants of some region where all was beauty and purity; where no storms ever ruffled their plumage; where they floated about on never-tiring wings in a bright and balmy atmosphere, incapable of resting from their happy flight, and nourished only by the dews and perfumes of a cloudless sky. They were called *Birds of Paradise:* and the few specimens that Europeans saw were supposed to have accidentally visited some sunny spot of our world, rich with flowers and spices, but not their true abiding-place. Such were the tales that the old writers of natural history adopted; and to which even scientific persons appeared to give belief, when they named one of the species, *Paradisea apoda*, the *footless* Bird of Paradise.

The most correct description of the Birds of Paradise is that given by Gaimard, one of the naturalists who accompanied the French expedition of discovery under Captain Freycinet, in 1817. He observed many of these birds in the island of Vaigiou, one of the islands forming the group of which New Guinea is the principal. They constitute a genus of the order of *Omnivores* (eating all things). Their principal food is fruit and insects; and the strength of their beaks and feet admirably fit them for sustaining themselves in the thick woods where they dwell. They delight in the most inaccessible parts of forests; and when the weather is serene, they perch themselves on the topmost branches of the highest trees. They fly with great rapidity, although they constantly direct their course against the wind. This is a proceeding which they are compelled to adopt, in consequence of the luxurious trappings with which nature has clothed them; for the wind, pressing in the direction of their long feathers, holds them close to their bodies: in a contrary direction their plumage would be ruffled, and their loaded wings would act with difficulty. They, however, seldom venture from their retreats in rough weather. At the approach of a storm they entirely disappear, instinctively dreading the hurricane, which they would be unable to meet, and before which it would be equally dangerous to fly. They are extremely courageous, ready to attack any bird of prey that excites their alarm. They have never been seen in a state of domesticity amongst any of the Papou tribes, inhabiting the islands where they are commonly found. Of their nests, their mode of hatching, and their care of their young, nothing appears to be known.

In the wood-cut at the head of this article we have grouped together some of the more splendid of the Birds of Paradise, as given by Le Vaillant, in his work on Birds. The species, No. 1, (*Par. apoda,*) is very remarkable for the beauty of its plumage, which is of the most varied and brilliant colours. It is especially distinguished by the long curved fillets which spring from beneath its wings, and extend in length about two feet. No. 2 (Le Sifilet) is so called from the six fillets which adorn its head. No. 3 and 4 are drawn and described by Le Vaillant. The latter is represented displaying its splendid plumes as the peacock does his tail. No. 5 (the Superb) exhibits pretty clearly the nature of the plumage of the Birds of Paradise. The sort of tippet upon its breast, and the fan-like ornaments of its shoulders, have no connection either with the wings or the tail. The bird has the power of raising or depressing them; but they do not appear to assist its flight. Those on the shoulders fold down over a part of the wings like a mantle. In dimensions the various species differ considerably. The bodies of most are not larger than that of a thrush, although the thickness of their plumage makes them appear the size of a large pigeon.

One of the most beautiful of the Birds of Paradise is called the king-bird, (*Paradisea regia*). Of this species many curious stories are current in the islands where these birds are found. The natives aver, for example, that the two principal species of Paradise birds have each their leader, whose imperial mandates are received with submissive obedience by a numerous train of subjects; and that his majesty always flies above the flock to issue his orders for inspecting and tasting the springs of water where they may drink with safety—the Indians being in the practice of taking whole flocks of birds by poisoning the water where they resort to drink. Le Vaillant considers that this notion originated from the casual observation of a strange species amongst a gregarious flock. This explanation accords with the account given by M. Sonnerat of the manners of the king-bird of Paradise; for being a solitary bird, going from bush to bush in search of the berries upon which it feeds, it may occasionally be seen near the flocks of those which are gregarious, where its singular plumage must render it conspicuous.

These gorgeous trappings of the various species of the Birds of Paradice excite the cupidity of man. The feathered skins form a large object of commerce between the people of the New Guinea islands and the Malays. The natives entrap the birds or shoot them with blunt arrows; and they prepare the skins with considerable nicety, having removed the true wings, which are not so brilliant as the other feathers, and cut off the feet and legs. The absence of feet in all the specimens brought to Europe, gave rise to the fable that the Birds of Paradise had no power of alighting, and were always on the wing. Their migratory habits may probably also have given some colour to this tale. At the nutmeg season they come in flights from the southern isles to India; and Tavernier says, "The strength of the nutmeg so intoxicates them that they fall dead drunk to the earth:"

> "Those golden birds that, in the spice time, drop
> About the gardens, drunk with that sweet food
> Whose scent hath lur'd them o'er the summer flood."
>
> Moore.

Influence of Domestic Habits.—The man who lives in the midst of domestic relations will have many opportunities of conferring pleasure, minute in detail, yet not trivial in the amount, without interfering with the purposes of general benevolence. Nay, by kindling his sensibility, and harmonising his soul, they may be expected, if he is endowed with a liberal and manly spirit, to render him more prompt in the service of strangers and the public.—*Godwin's Preface to St. Leon.*

COUNCILS OF TRADE.

An excellent institution exists in all the great manufacturing towns of France, which, with some few modifications to suit the difference of circumstances, might be adopted with advantage in the manufacturing towns of other countries. This establishment consists of local tribunals charged with the discussion and settlement of all questions connected with the manufacturing interests of each particular district. An institution of this kind formerly existed in France under the title of the "Maitre Garde." This manufacturing tribunal was revived and re-modelled by a decree of Napoleon in 1806, and is now known by the name of "Conseil des Prud'hommes." In the evidence given by Dr. Bowring on the Silk Trade, the Conseil des Prud'hommes at Lyons is more particularly described. The following brief notice of this tribunal is here given with the hope of making it better known; as we believe that an institution of such a nature, with some few alterations, might lead to a permanent improvement in the morals and happiness of the inhabitants of our manufacturing towns.

This society at Lyons is composed of nine silk manufacturers and eight silk weavers. The representatives of the manufacturers have always been elected by the whole body of master manufacturers, but until lately a more exclusive system was practised with regard to the election of the weavers. Those weavers only were eligible to vote who had paid the patent duty; their number, amounting to sixty, formed only a small proportion of the whole body of working weavers, and it resulted in consequence that as these latter were not truly represented, their interests were not properly considered, so that injustice and mismanagement sometimes occurred.

After the events which took place at Lyons in November 1831, this great grievance under which the weavers laboured was remedied, and the institution was re-organized. Accordingly, at the beginning of last year, the right of voting was much enlarged, and extended to all weavers who possess four looms or more of their own. This number is at present seven hundred and seventy-eight, and the number of looms belonging to them collectively is three thousand four hundred and thirty-five looms. This body of men is represented by the eight weavers in the "Conseil des Prud'hommes," which is thus composed of workmen and masters; the president always being a manufacturer.

The business of this association is to conciliate and watch over the interests of all parties. Any disputes about wages are settled by their authority; all questions between masters and men, and masters and apprentices, and, in short, every thing which can in any way bear upon the question of the silk manufacture is referred to them. They are invested by Government with a certain defined power: in some cases they have the privilege of inflicting fines, and are allowed to punish by imprisonment to the extent of three days; a discipline which is repeatedly applied to refractory apprentices. They have also the power of summoning witnesses and compelling their attendance. This tribunal sits in open court; its discussions are an object of great interest, and its decisions give general satisfaction. It acts as a *court of conciliation*. Dr. Bowring states, that he was much struck with the general good sense of the proceedings in this court. The men who represent the weavers appeared to be men of sound discretion and sober judgment, and the whole is well organized and extremely popular.

Such an association, established in every manufacturing town, and formed of manufacturers and artisans chosen in equal numbers, and from the whole body of their respective classes, would do much towards promoting and continuing cordial good-will between masters and workmen. Such regulations and arrangements might be framed by their representatives as would best conduce to their mutual interest, and they would discover that unity of purpose, while it created a kindly sympathy between the two parties, is one means of guarding against fluctuations in trade, and of insuring prosperity to both the artisan and the manufacturer.

ON THE PRONUNCIATION OF HARD WORDS.

[Continued from No. 54.]

Another class of hard words in which our language abounds is those terms of art and science which are compounded of Latin and Greek words, especially the latter. These are now exceedingly numerous, and so frequently and so unavoidably used, that it is a matter of *necessity* to understand them, and of great *use* to pronounce them aright.

The *meaning* of these words is often understood simply because the *thing* and the *name* are at the same time presented to us. We see or learn from experience the properties of the *thing*, and we therefore attach definite ideas to the *name* by which it is signified. Most people know very well what is meant by a *telescope*, a *kaleidoscope*, a *microscope*, and many other words ending in *scope*. But when a new name arises such as *stethescope*, belonging to some art or science which is practised only by few, the *thing* is, to the generality of people, unseen and unknown; and consequently the *name* conveys no idea with it. This is a great disadvantage in the present state of our language, that when a new *name* is introduced, which is compounded of two or more words, the *name* does not convey *in itself*, to an English reader, any description of what the thing is. This happens because the parts of which such words are composed are really Greek words, and therefore cannot be generally understood. If, instead of *telescope*, *kaleidoscope*, *microscope*, *stethescope*, we were to say a *long-seer*, a *pretty-seer*, a *small-seer*, a *breast-seer*, these names themselves would convey some idea; but unfortunately we have so long abandoned this mode of making new words, that we believe it impossible ever again to use the materials of our language for such a purpose. The Germans have in this a great advantage over us, as a very large number of their scientific terms are formed of words already existing in the language, and familiar even to the poorest labourer. Thus, instead of *geography*, *osteology*, *metallurgy*, *chronology*, *architecture*, they can say, *earth-description*, *bone-knowledge*, *smelting-art*, *time-reckoning*, *building-art*; though they have also other words for many of these terms of art, which are the same as ours with some slight difference in orthography, such as *geographie*, *chronologie*, &c. Notwithstanding the number of hard words by which all our sciences are fenced in, just as if the intention had been to bar up the road and the approaches to knowledge, we believe that it is practicable to make them all more intelligible to the least educated people, who possess common sense and a little industry, than they are at present to nine-tenths of those who so readily use these words, and only pretend to know their meaning.

The recognised pronunciation of the vowels and consonants in such words as we have just alluded to, is, with few exceptions, the same as in real Greek words. Yet there are *some* exceptions: for instance, we pronounce *arch* in *archbishop*, in the same way as when the word signifies a curved piece of building, such as *bridge* or *gateway*. In other cases where the word *arch* precedes a vowel, it should be pronounced like *ark*, as in *architrave*, *architecture*. The pronunciation of *c* and *g* follows the rules already given; but when *g* precedes *y*, as in *gymnasium*, *gymnastics*, *gypsum*, and perhaps some few more instances, there is no absolutely fixed rule, though there ought to be: some people pronounce the *g* like *j* in *judge*, others like *g* in *gone*. The latter is undoubtedly preferable. *Ch* at the beginning of all words derived from Greek, and, indeed, in any other

part of a word, should be pronounced like *k*, as in *chemistry*, *chondropterygii*, *acronychally*, &c.

The syllable on which the main stress should be put, otherwise called the accented syllable, is pretty well determined in all words of common use, such as *thermo'meter*, *baro'meter*, *astro'nomy*, *geo'graphy*, *geo'logy*, *te'lescope*, *che'mistry*; and from these and other similar instances a useful rule may be deduced, which is this—in words of three or more syllables (and perhaps this comprehends far the greatest number of instances), the accent should be placed on the third syllable from the last. According to this rule the word *orycte'ropus*, the scientific name for the *Aard-vark* (see Pen. Cy. p. 1), should be pronounced as we have marked it, with the accent on the last syllable but two, which is technically called the *antepenultima*. There are, however, exceptions to this rule, as *a'dama'ntine* (which has two accents), *a'eroli'te* (a word of four syllables), which has the chief accent on the first syllable, and also one on the last. This word *a'-e-ro-li'te* reminds us that we ought to remark, that when *a* and *e* are not united in one syllable, they should be pronounced perfectly distinct, as in the example given, and in *a-e'-ri-al*, *a'-e-ro-nau't*. *Achroma'tic*, a word signifying "without colour," *diploma'tic*, *pragma'tic*, and some other words of this class are pronounced as we have marked them.

We have still something more to say about *orycte'ropus*. Many scientific terms have been formed by persons, who were only imperfectly acquainted with the Greek language, from which these terms are principally taken, and consequently they have not always been formed according to analogy, *i. e.* the makers of these new words have not in all cases attended to the same general principle on which all words of *one kind* should be constructed. In addition to this, the *pronunciation* of many of these words, with respect to the accented syllable, is not *always* quite the same among the persons who profess the science to which it belongs: it is not *always* the same among people of the same country or nation; and nothing is so common as for the people of one nation, such as the English or French, to follow a different practice from those of another nation, such as the German or Italian. There is, therefore, in some cases, though perhaps they are not very numerous, no established practice which all people will acknowledge to be right. But more than this: a person well acquainted with the Greek language will often assert that many terms of art are wrongly pronounced by those acquainted with the art. He will assert, for instance, that *orycte'ropus* should be pronounced *ory'cteropu's*; and he will be right according to the analogy of the *Greek* language. But *usage*, we think, ought to decide which mode of pronunciation ought to be adopted, and usage will undoubtedly be in favour of *orycte'ropus*.

KENILWORTH CASTLE.

[Remains of Kenilworth Castle.]

Kenilworth, or as it has been sometimes written, Killingworth Castle, in Warwickshire, about midway between the towns of Warwick and Coventry, and within five miles of each, is one of the most magnificent ruins in England. The town of Kenilworth appears to have had its castle even in the Saxon times; but no part of the present building was erected till after the beginning of the twelfth century, in the reign of Henry I. Its founder was Geffrey de Clinton, said to have been a person of humble origin, originally from Clinton in Oxfordshire. He raised himself, however, to importance by the superiority of his talents; and after having held the office of Lord Chamberlain and Treasurer, he was finally elevated to that of Lord Chief Justice of England. In 1165, however, in the reign of Henry II., the castle seems to have come into the hands of the crown; but, soon after the accession of King John, it was restored to Henry de Clinton, the grandson of the founder. When or how it again became the property of the crown does not appear; but in 1254 possession of it was granted for life, by Henry III., to Simon de Montfort, who had that year married his sister Eleanor, the Countess Dowager of Pembroke, and whom he soon after created Earl of Leicester. This bold and aspiring nobleman, having some time after headed an insurrection of the barons, was, after the temporary success of that enterprise, slain at the great battle fought near Evesham in Worcestershire, on the 4th of August, 1265; the royal troops being commanded by Prince Edward, afterwards Edward I. In the following year the Castle of Kenilworth maintained against the victorious prince one of the most obstinate defences recorded in our history. Although Simon de Montfort, the late earl's son, had already surrendered himself, a body of his father's followers, who held possession of the castle, still continued to bid defiance to the royal authority. They seem to have been a band of men of the most determined and desperate character. While they occupied Kenilworth they were the terror and scourge of the neighbourhood for many miles around, the parties whom they sent out to forage in all directions doing their work of plunder and destruction with a recklessness and ferocity unpre-

cedented even in that barbarous age. Prince Edward and his army sat down before the castle on the 25th of June. Before this a herald whom the King had despatched to summon the garrison to surrender, had been sent back with his hand cut off. The besiegers immediately commenced the assault of the fortress; but they were met with a resistance so vigorous as to render their utmost efforts unavailing. The place was well stored with provisions; and the tradition is, that various formidable engines of war were for the first time brought into use on this occasion, by means of which the besieged were enabled to hurl enormous stones with the most destructive force against their assailants. Some of these stones are still pointed out lying in the neighbourhood of the ruins. The Prince then determined to turn the siege into a blockade. Various overtures were made to the garrison; and on the 24th of August a parliament was assembled in the camp, which promulgated an act for the general pardon of the rebels on certain specified and very lenient conditions. Even this declaration, however, known by the name of the *Dictum de Kenilworth*, produced no effect. But famine and disease at last compelled them to capitulate about the beginning of November. By this time they had been forced to eat their horses, and every man of them was reduced almost to the paleness and ghastliness of a corpse.

Henry, upon thus obtaining possession of Kenilworth, bestowed it upon his second son, Edmund Earl of Derby, to which title was soon after added that of Earl of Leicester and Lancaster. Here, in 1279, in the reign of Edward I., was held a grand tournament, known by the name of *the Round Table*, from the manner in which the guests who attended the festival were placed, in order to prevent all disputes as to precedence. A hundred ladies were present; and as many knights, many of them foreigners, displayed their skill and prowess against each other with horse and lance.

On the attainder and execution of Thomas Earl of Lancaster, son of Edmund, in 1322, his castle of Kenilworth again reverted to the crown. When the weak and unhappy Edward II. fell into the hands of his insurgent barons, (headed by his infamous queen and Henry of Lancaster, the brother of the late Earl Thomas,) he was conveyed to this strong-hold, and detained in close imprisonment for several months. Here he went through the ceremony of formally resigning the crown to his son. Kenilworth now returned to the family of Lancaster, which also obtained the superior title of Duke; and it remained in their hands till it fell to John of Gaunt, by his marriage with Blanch, the daughter and heiress of Duke Henry, commonly called the *Good Duke*, the son of the Henry mentioned above. His son Henry IV. brought it once more back to the crown, from which it was not again separated till Elizabeth, soon after her accession, conferred it upon her favourite Robert Dudley, the celebrated Earl of Leicester. On his death, in 1588, it passed to his brother the Earl of Warwick, and shortly after to Sir Robert Dudley, Leicester's son by the Lady Douglas Sheffield, to whom it has been generally believed that he was married, though he never would acknowledge her as his wife. On Dudley persisting in remaining abroad without a licence, his manor of Kenilworth was confiscated to the crown in the commencement of the following reign, and bestowed by James upon his eldest son the lamented Prince Henry. At this time, according to a survey which was made of it, the ground within the walls was found to consist of seven acres. The castle itself is described as built all of hewn freestone, the walls being from four to fifteen feet in thickness. The circuit of the entire manor was not less than nineteen or twenty miles, within which were included nearly eight hundred acres of woods, "the like," say the surveyors, "both for strength, state, and pleasure, not being within the realm of England."

The magnificent pile had in fact been reared by the labours of four centuries, almost every proprietor into whose hands it passed having added something to its extent, beauty, and grandeur. John of Gaunt, in particular, and Dudley Earl of Leicester, had spared no expense to make it, what it was acknowledged eventually to be, the noblest mansion in England. Dugdale states that the sum expended on the buildi by the latter did not fall short of £60,000. At the ommencement of the civil wars Kenilworth was in all its glory. But it was also on the eve of its destruction. On the ascendancy of the republicans, Cromwell bestowed the property upon some of his officers, who demolished the castle, and sold such of its materials as could be removed for what they would bring. For many years after this, its bare and crumbling walls were left exposed to the depredations of all who chose to make a quarry of them, till the place was reduced to the state in which it now is.

Still, as we have said, the ruin is an extensive and magnificent one. Mr. Britton, in his Architectural Antiquities, has given a ground-plan of the building, from which a good idea may be formed of what it was in its prouder days. Every thing essential to it, either as a residence or a fortress, seems to have been contained within the ample sweep of its encompassing battlements. Its south, east, and west sides were surrounded by a broad belt of water, which could also be carried round the north. Out-jutting towers of defence guarded it at every point. The interior comprehended two ample courts, named the upper and the lower ward, a large garden and a tilt-yard, surrounded with splendid galleries for the accommodation of the spectators. At the end farthest removed from the chief buildings stood the stables; near them was the water tower; and not far off, another erection, probably used as the prison of the castle. The inhabited part consisted of various suites of apartments, many of which seem to have been of the most superb description. The great hall, which was built by John of Gaunt, and the walls of which are still standing, was of the dimensions of eighty-six feet in length by forty-five in width.

The appearance of Kenilworth in its present dilapidated state is picturesque in the extreme. Much of it is covered and overhung with ivy and other clinging shrubs, intermixing their evergreen beauty with the venerable tints of the mouldering stonework. The noble moat, or lake, as it might more properly be called, in the midst of which it once stood, and which in former times used to be stored with fish and fowl, is now almost dried up. But, besides the hall already mentioned, vast portions of the pile are still standing in the same dismantled state. The walls of the hall are perforated by a series of lofty windows on each side; and spacious fire-places have been formed at both the ends. Another remarkable part of the ruin is a tall dark-coloured tower, near the centre, supposed to have been built by Geffrey de Clinton, and to be the only portion now existing of his castle. Like many of the old fortresses, both in this country and on the continent, it has obtained the designation of Cæsar's Tower, probably from the fancy that it was erected by that conqueror. One of the gate-houses, the work of the Earl of Leicester, is also still tolerably entire. The different ruins are still known by the names of Lancaster's and Leicester's buildings, in memory of their founders. One portion is called King Henry's apartments, being that in which it is said King Henry VIII. was wont to lodge.

But the brightest era in the history of Kenilworth was in the reign of Elizabeth. The old fame of Leicester's splendid festivities has been lately revived among us by the graphic pen of Scott, whose rich fancy has also peopled the desolation of this fine ruin with some of its most vivid creations, although in this instance at the expense, it must be allowed, of no slight deviation from historic truth. But the hospitalities of Kenilworth had been celebrated long ago both in prose and verse,

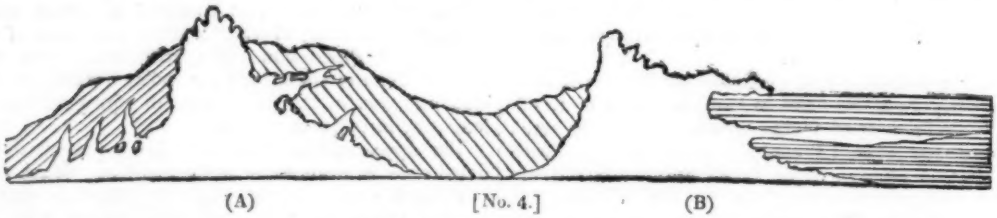
Queen Elizabeth thrice visited Leicester after he had taken possession of this princely domain, first in 1565, again in 1572, and for the third time in 1575. It was on this last occasion, when the royal visit lasted for seventeen days, that the entertainments were most remarkable for their cost and gorgeousness. A long and minute account of them was soon after published by a person of the name of Laneham, who was in attendance on her Majesty; and George Gascoigne, the poet, who wrote a mask that was acted on the occasion, also sent his production to the press. Both works are to be found in the first volume of Mr. Nichols's Progresses and Public Processions of Queen Elizabeth, published in 3 vols. 4to. in 1823.

MINERAL KINGDOM.—Section 4.

We have shown that the crust of the globe is composed of two great classes of rocks, one of which consists of a series of beds of stone of different kinds, lying upon one another in a certain determinate order of succession, called the *Stratified Rocks* or the *Strata;* the other of a class of stones distinguishable from the strata by peculiar mineral composition, by never containing pebbles or the remains of animals and plants, and by never being arranged in parallel layers, and from which last character they have been denominated the *Unstratified Rocks.* We shall now proceed to show in what manner these two classes of rocks are associated together. It is quite evident that the mode of formation of the two must have been totally different. While the strata, by their parallel arrangement, the pebbles of pre-existing rocks, and remains of living bodies which they contain, demonstrate that they must have been formed under water, by deposition *from* the surface downwards, the whole characters of the unstratified rocks equally prove that they must have come *to* the surface from the interior of the earth, *after* the deposition of the strata; that is, that they have been ejected among the strata from below in a melted condition, either fluid or in a soft yielding state. Geologists have come to this conclusion, from a careful examination and comparison of the unstratified rocks with the products of existing volcanoes, or those burning mountains that have thrown out streams of melted stone or lava, both in past ages, as recorded in history, and in our own time. By this comparison they have discovered a great similarity, often an identity, of composition between the unstratified rocks and lava, and the closest analogy in the phenomena exhibited by the masses of both kinds, and in their relations to the stratified rocks with which they come in contact.

In every case the unstratified rocks lie under the stratified. This order has never been reversed, except in cases which have been afterwards discovered to be deceptive appearances, and where they have been protruded between strata, as will be afterwards mentioned. But it may be said that this fact of inferiority of position is no proof of ejection from below, far less of posteriority of formation, for they might have been the foundation on which the strata are deposited; their eruption from the interior, and that that eruption took place after the strata were formed, are proved by other evidence, as we shall presently show.

A section of the crust of the earth, where the stratified and unstratified rocks have been found associated together, has often exhibited the appearance represented by the diagram No. 4.



(A) [No. 4.] (B)

A and B are mountains of granite or of whinstone, with strata of limestone lying upon it. From A branches or shoots connected with the principal mass are seen to penetrate into the superincumbent strata, and in the mountain B the granite overlies the limestone for a considerable way near the top, as if it had flowed over at that place, and lower down it has forced its way between two strata, ending like a wedge. Now as the penetrating substance must necessarily be of subsequent formation to the body that it penetrates, it is evident that the granite must have been formed after the limestone, although the latter rests upon it. But if any doubt remained, it would be removed by the additional fact that the granite veins in the mountain A contain angular fragments of limestone, identical with the strata above, and the fractured ends are seen to fit the places of the continuous stratum from which they have been broken off.

The posteriority of the formation of the unstratified rocks to the strata is thus made evident from their relative positions; their forcible ejection from below is equally proved by the penetration of their veins or shoots into the superincumbent strata in an upward direction, often with the most slender ramifications to a great distance, and by the portions broken from the strata and enveloped in the substance of the vein. That they were ejected in a soft melted state, produced by the action of heat, is shown by the close resemblance in mineral composition of the unstratified rocks to the products of existing volcanoes, and by remarkable changes often observed to have taken place in the strata where they come in contact with granite and whinstone. Soft chalk is converted into a hard crystalline limestone like statuary marble; clay and sandstone are changed into a substance as hard and compact as flint, and coal is turned into *coke;* all of them changes which are analogous to what takes place when the substances are subjected to a strong artificial heat under great pressure. In the case of coal it is very remarkable; for when a bed of that substance, and a stratum of clay lying next it, come in contact with whinstone, the tar of the coal is often driven into the clay, and the coal loses all property of giving flame, although, at a distance from the whinstone, it is of a rich caking quality.

We have shown that we are enabled to fix a chronological order of succession of the strata with a considerable degree of precision, and although we have not the same accurate means of determining the relative ages of the unstratified rocks, there are yet very decisive proofs that certain classes of them are older than others, that different members of the same class have been ejected at distinct periods, and that the same substances have been thrown up at different times far distant from each other. Granite, in veins, has never been seen to penetrate beyond the lower strata; but whinstone and the lavas of existing volcanoes protrude in masses, and send out veins through all the strata: veins of one sort of granite traverse masses of another kind, and whinstone and basalt veins are not only found crossing masses and other veins of similar rocks, but even of granite. Upon the principle, therefore, before stated, that the penetrating substance must necessarily have been formed subsequently to the body penetrated, the above phenomena demonstrate successive formations or eruptions of the unstratified rocks.

As the highly elevated, broken and contorted positions of the strata are only explicable on the supposition of a powerful force acting upon them from below, and as they are seen so elevated and contorted in the neighbourhood of the unstratified rocks, it is a very legitimate inference that the mountain chains and other inequalities on the earth's surface have been occasioned by the horizontally deposited strata having been heaved up by the eruption of these rocks, although they may not always appear, but be only occasionally protruded to the surface, through the rents produced by the eruptive force. The phenomena of earthquakes are connected with the same internal action, and these have often been accompanied by permanent elevations of entire portions of a country. This theory of the elevation of mountains by a force acting from the interior of the earth is not a mere inference from appearances presented by rocks, but is supported by numerous events which have occurred repeatedly within the period of history down to our own time. In the middle of a gulf in the island of Santorino, in the Grecian Archipelago, an island rose from the sea 144 years before the Christian era; in 1427 it was raised in height and increased in dimensions; in 1573 another island arose in the same gulf, and in 1707 a third. These islands are composed of hard rock, and in that last formed there are beds of limestone and of other rocks containing shells. In the year 1822, Chili was visited by a violent earthquake which raised the whole line of coast for the distance of above one hundred miles to the height of three or four feet above its former level. Valparaiso is situated about the middle of the tract thus permanently elevated. A portion of Cutch, near the mouth of the Indus, underwent a similar revolution in the year 1819, when a district, nearly sixty miles in length by sixteen in breadth, was raised by an earthquake about ten feet above its original level. A volcanic eruption burst out in an adjoining part of India at Bhooi at the exact period when the shocks of this earthquake terminated. These cases must not be confounded with the production of new mountains, such as that of Jorullo in Mexico in the year 1759, which was raised to the height of 1600 feet above the table land of Malpais by eruptions of scoriæ and the outpouring of lava. The appearance of a new island off the coast of Sicily in the year 1831 is another phenomenon of the latter class. It rose from a part of the sea which was known by soundings a few years before to have been 600 feet deep, to the height of 107 feet above the water, and formed a circumference of nearly two-thirds of a mile. It was composed of loose cinders, and the part that rose above the level of the sea was washed away in the winter of the same year, but an extensive shoal remains.

It must not be supposed that these internal movements only took place after the whole series of strata, represented in diagram No. 1*, had been deposited. There must have been long intervals between the termination of the deposition of one member of the series and the commencement of that of the stratum immediately above it; and internal movements accompanied with disturbance of the already deposited strata, after they had come to consolidate into stone, appear to have taken place during the whole period that the strata, from the lowest to the uppermost in the series, were deposited. The clearest evidence of this is afforded by certain appearances exhibited by the strata in all parts of the globe that have yet been examined. The diagram, No. 5, represents a case of very common occurence, and will explain our meaning: it must be borne in mind that it is an acknowledged principle in geology that all stratified rocks, in whatever position they are now found, must have been originally deposited horizontally

[No. 5.]

There are here five different series of strata, *a*, *b*, *c*, *d*, *e*. Now, it is evident, that the series *a* must have been first disturbed; that, after its change of position, the series *b* and *c* were deposited, covering *the ends* of the strata of the series *a*. But *c* appears to have been acted upon by two forces at distant points, when thrown out of its horizontal position, for the strata dip in opposite directions, forming a basin-shaped cavity, in which the series *d* was deposited. In like manner, after the disturbance of *c*, the series *e* was deposited, covering the ends of *c*; but the internal force which raised the beds *e* from the depths of the sea to the summit of the mountain where they are now seen, appears to have acted in such a direction as to have carried up the whole mass without disturbing the original horizontality of the structure. It is obvious that all the interior strata must have partaken of this last disturbance. There are, besides, numerous proofs that there have been not only frequent elevations of the strata, but also depressions; that the same strata which had been at one time raised above the surface of the sea had again sunk down, preserving an inclined position; that they had formed the ground upon which new sediment was deposited, and had again been raised up, carrying along them the more recently formed strata.

In our next section we shall proceed to point out certain great divisions in the series of stratified rocks, which are founded upon the chronological order of superposition, which we have described in this and the preceding sections.

LORD SOMERS.

The 4th of March has been sometimes stated to be the birth-day of Lord Somers; but neither the day on which he was born, nor even the year, is known with certainty. It rather appears that the latter was 1650, although some accounts make it to have been 1652. The father of this distinguished lawyer and statesman was an attorney, residing in the town of Worcester. Here his son John, the subject of our present notice, was born. He was remarked from his earliest years for a sobriety and steadiness of disposition, which even prevented him from joining much in the sports of those of his own age; but both at school and at the university he distinguished himself rather by his studiousness than by the brilliancy of his talents. He was entered as a Gentleman Commoner of Trinity College, Oxford, in 1674, and was called to the bar by the Society of the Middle Temple in 1676. He did not, however, commence the exercise of his profession till some years after this; remaining at Oxford till 1681, when his father died, and left him a small property. Meanwhile he had been most industriously storing his mind both with legal and general knowledge, and had even appeared as a writer, by taking part in a translation of Plutarch's

* See Penny Magazine, No. 61, page 21.

Lives, and another, in verse, of Ovid's Epistles, which were published by Tonson. Some Tracts, on points of Constitutional Law, also proceeded from his pen about this time, which attracted much notice. Having removed to London in 1682, and soon after begun to practise at the bar, he rapidly rose to professional distinction. In the great trial of the Seven Bishops, which took place in the Court of King's Bench on the 29th of June, 1688, Somers was engaged as one of the counsel for the defendants. His appearance on this occasion brought him conspicuously before the nation, both as one of the ablest lawyers of the day, and one of the most formidable champions of the popular party in the state. It is understood, indeed, that he was already one of the confidential advisers of the Prince of Orange. Accordingly, at the close of this year, when the Prince, after his landing, summoned the Convention, Somers was chosen as a representative to that assembly by his native town of Worcester. He took a leading part in the discussions which followed, and especially distinguished himself in the conference between the Lords and Commons, on the famous resolution of the latter, that the King, James II., had abdicated the government, and that the throne was thereby become vacant. He also acted as chairman of the second of the two committees appointed to arrange the securities of the new settlement, on whose report was founded the Declaration of Right; and is probably, therefore, to be considered as one of the chief among "those, whose penetrating style," as Burke has strikingly expressed it, "has engraved in our ordinances, and in our hearts, the words and spirit of that immortal law." Soon after the accomplishment of the Revolution he was made Solicitor-General, and knighted. On the 2d of May, 1692, he exchanged this office for that of Attorney-General; and on the 23d of March, in the following year, he was elevated to the dignity of Lord Keeper of the Great Seal. He presided in the Court of Chancery under this title till the 22d of April, 1697, when he was appointed Lord High Chancellor, and raised to the peerage as Baron Somers of Evesham. The King also bestowed upon him at the same time a grant of the manors of Reygate and Howleigh in Surrey, worth about £600 per annum, together with an annuity in money of £2,100. The place which he now occupied was no higher than that to which the most competent judges, and indeed the public generally, had long regarded him as both destined and entitled. "Though he had made a regular progress," says Addison, ('Freeholder,' No. 39,) "through the several honours of the long-robe, he was always looked upon as one who deserved a superior station, till he arrived at the highest dignity to which these studies could advance him."

In the parliament, however, which met in December, 1698, the party to which Lord Somers had been all his life opposed, appeared in great and unusual strength. It was not long before they began to direct the most violent and persevering attacks against the Chancellor. Of their charges, we can only afford room to state, that they now seem to be considered, by historians of all shades of opinion, as entirely without foundation. At the time, however, they served the purpose of their authors too well. After various other proceedings, on the 10th of April, 1700, an address was moved in the House of Commons for the dismissal of the Chancellor. It was negatived; but King William, alarmed by the pertinacity of the enemies of his able and honest minister, and actuated by the hope that by that sacrifice the clamours of the faction might be appeased, a few days after asked Lord Somers to make a voluntary surrender of the seals. His lordship did not think that it became him thus to assist by his own act those who wished to accomplish his degradation, and he respectfully refused to comply with the royal request. The King then sent an express demand for the seals, when they were instantly delivered.

But even the dismissal of Lord Somers did not put an end to the persecution of which he was the object. On the 14th of April, 1701, the House of Commons sent up articles of impeachment against him to the Lords. When the day for the trial came, however, nobody appeared to support the charges; and his lordship was of course acquitted. He now retired altogether for some time from public affairs, devoting himself to those literary and scientific pursuits which in his busiest days he had never entirely neglected. He had always indeed shown himself in the days of his power a zealous patron of literature. Among the eminent persons whom his encouragement contributed to bring into notice may be mentioned the celebrated Mr. Addison, who dedicated to him one of his early poems, and also, in 1702, his Travels in Italy, in a very flattering address. The first volume of the Spectator is likewise dedicated to Lord Somers. In 1702 his lordship was elected President of the Royal Society, of which he had long been a member.

He afterwards returned to public life; and in 1706 introduced a very important bill, for removing certain defects in the practice of the courts of law. He has also the credit of having been the chief projector of the union with Scotland, and he certainly took an active part in the promotion of that measure. He was also again in place, as President of the Council, from 1708 to 1710; and even after his second dismissal from office, in the latter year, continued for some time to be an active and powerful debater in the House of Lords. His health, however, at length began rapidly to decline, and although he appeared at the Council Board after the accession of George I., both his body and mind were by that time so much enfeebled as to incapacitate him from taking any share in business. At last, on the 26th of April, 1716, a stroke of apoplexy terminated his sufferings in death. Lord Somers never was married, and his estates went to the descendants of a sister.

[Portrait of Lord Somers.]

*** The Office of the Society for the Diffusion of Useful Knowledge is at 59, Lincoln's-Inn Fields.

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